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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,913	02/07/2005	Thomas Daniel	29827/40829	9466

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EXAMINER	
LISTVOYB, GREGORY	
ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,913	DANIEL ET AL.	
	Examiner	Art Unit	
	GREGORY LISTVOYB	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/25/2008 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 8-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Torii et al (US 2003/0069359) herein Torii in combination with Freedman et al (US 4478938) herein Freedman (necessitated by Amendment).

Torii discloses a water absorbent comprising

(a) particles of a water absorbent polymer, and

(b) a nitrogenous polymer containing from 5 to 23 mol/kg, based on the total weight of the nitrogenous polymer, of protonatable nitrogen atoms (Commercial name CationfasrtPR8106) with protonable nitrogen content of 6.1 mol/kg (see Example 10 and Abstract or Example 5, where cation density is 23 mol/g) . Most favorably, protonable nitrogen content is more than 6mol/kg (line 0159).

Note that Torii does not teach the claimed range of protonatable groups in his Examples.

However, according to MPEP 2123, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments (see also *In re Susi,* 440 F.2d 442, 169 USPQ 423 (CCPA 1971), *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) , *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Regarding limitation claiming that amount of protonable nitrogen atoms 7.5 to 15 mol/kg, Torii discloses a broad range of cationic densities (As mentioned above, most favorably, protonable nitrogen content is more than 6mol/kg (line 0159)). Torii teaches much higher density of 11 mol/kg (see Example 4). The position is taken that protonable nitrogen content can be adjusted by an artisan for specific applications. Low cationic density produces low adsorbing capacity material, while very high amount of ,protonable nitrogen content leads to difficulties with material handling due to high intermolecular interactions. In addition, Torii discloses that most favorable MW is at least 10000 Daltons (line 00157).

Regarding Claims 3 Torii discloses a water absorbent (see discussion above) characterized

a particle size distribution where more than 97% by weight of the particles are from 150 to 850 um in size,

a Saline Flow Conductivity (SFC) of at least 30 x 10-7 cm3/g (see Table 3),

a Ball Burst Strength (BBS) (30 min) of at least 50 gf (125 gf in Example 10, see Table 3),

a Ball Burst Strength (BBS 16hr) (16 h) of at least 80 gf (125 gf in Example 10, see Table 3),

and a quotient [BBS (30 min) - BBS (16 h)]/BBS (30 min) of less than 0.8 (equal to Zero, see Example 10 and Table 3).

In Examiner position, the Torii's polymer with 3% of particles with size less than 149 um is functionally identical to a polymer of the Application, where 2% of particles with size less than 100um.

Regarding claims 4 and 5, Torii and Application disclose the nitrogenous polymer the nitrogenous polymer is a hydrolysis product of a homo- or copolymer of an N-vinylcarboxamide and/or N-vinylcarboximide (Catiofast PR (see Example 10 and Tables 2 and 3) used in the Application (see page 4, line 35 of the Application)).

In reference to Claim 6, Torii teaches water absorbent comprising from 0.01 to 10%wt of the nitrogenous polymer, based on weight of water absorbent polymer (see Claim 1).

In reference to Claims 8 and 9, Torii discloses a water absorbent polymer comprising 0-50% wt monoethylenically unsaturated acrylic acid and 50-100% wt of it salt (see line 0115) and 0.005 to 5% of crosslinking agent (see line 0126), which can be added after polymerization (see line 0127).

Regarding Claims 10-11, Torii discloses the water absorbent further comprises a cellulose powder, which is applied onto the composition, which includes nitrogenous polymer (see line 0168).

In reference to Claim 12 , Torii discloses a process comprising applying nitrogenous polymer onto a particles of water absorbent and if necessary drying the water absorbent (see line 0171).

In reference to a newly added claim 13, Torii discloses 0.01-10% of cationic polymer in water-absorbent composition (see line 0029).

Torii does not specifically teach weight average molecular weight of 100000 to 500000.

Freedman teaches polyalkyleneimine-based gel, employed as water adsorbent (see Column 4, line 50) with molecular weight within the range of 10000 to 1000000. Freedman teaches that if molecular weight of the polymer is not sufficiently high, no gelation occurs (see Column 2, line 20). In addition, low molecular weight fraction of hydrophilic polymer, such as polyalkyleneimine can be water soluble, making them un-applicable as a water adsorbent.

Therefore, it would have been obvious to a person of ordinary skills in the art to use polyalkyleneimine in Torii's applications since it creates gel more easily and not soluble in water.

Torii does not teach the newly added limitation claiming degree of hydrolysis in the range from 30 to 80 mol%.

Freedman teaches the degree of hydrolysis from 10 to 85%, preferably 50 % (see Column 2, line 15).

Degree of hydrolysis is directly connected to a number of cationic groups in a nitrogenous polymer. High degree of hydrolysis provides a polymer with high cationic density, whereas low degree of hydrolysis is favorable for processing of the polymer

(highly charged macromlecules tends to interact with each other, leading to low solubility, problems with even crosslinking, etc.)

Therefore, it would have been obvious to a person of ordinary skills in the art to use nitrogenous polymer with moderate degree of hydrolysis (i.e. 30-80% mol) in order to combine high density charge with good processability.

Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Torii in combination with Freedman and Nagasuna et al (US 2004/0019342) herein Nagasuna.

Torii discloses a water absorbent comprising

(a) particles of a water absorbent polymer, and

(b) a nitrogenous polymer (see discussion above).

Freedman teaches polyalkyleneimine-based gel, employed as water adsorbent (see Column 4, line 50) with molecular weight within the range of 10000 to 1000000. Freedman teaches that if molecular weight of the polymer is not sufficiently high, no gelation occurs (see Column 2, line 20). In addition, low molecular weight fraction of hydrophilic polymer, such as polyalkyleneimine can be water soluble, making them un-applicable as a water adsorbent (see discussion above).

Torii teaches finely divided silica, cellulose or borate particles (see line 0168).

However, Torii and Freedman do not specifically disclose a water absorbent, comprising finely divided insoluble inorganic salt.

Nagasuma discloses a water absorbent, comprising finely divided insoluble inorganic salt (see line 0157), which enhance the absorbent performance, such as in applications, where charged particles required.

Therefore, it would have been obvious to a person of ordinary skills in the art at the time the invention was made to add finely divided insoluble inorganic salt particles in Torii composition to enhance performance of the composition in specific applications, where charged particles are required.

Response to Arguments

Applicant's arguments filed 8/25/208 have been fully considered but they are not persuasive.

Regarding Torii, applicant argues that the reference fails to teach the polymer, simultaneously meeting the following parameters:

(a) a high weight average molecular weight in the range from 100,000 to 500,000 Daltons;

(b) a moderate amount of protonatable groups, which is from 7.5 to 15 mol/kg, based on the total weight of the nitrogenous polymer, of protonatable nitrogen atoms,

(c) a moderate degree of hydrolysis in the range from 30 to 80 mol%, let alone all three of the features (a), (b), and (c).

In fact, Torii teaches that amount of protonatable groups is preferred to be more than 6 mmol/g (see line 0159). Torii does not teach upper limit content for the above groups. However, in Example 5 he teaches 23 mol/g of protonatable groups.

Therefore, it is clear that amount of protonatable groups can be varied broadly, which includes a claimed range.

Torii does not specifically teach weight average molecular weight of 100000 to 500000.

Freedman teaches polyalkyleneimine-based gel, employed as water adsorbent (see Column 4, line 50) with molecular weight within the range of 10000 to 1000000. Freedman teaches that if molecular weight of the polymer is not sufficiently high, no gelation occurs (see Column 2, line 20). In addition, low molecular weight fraction of hydrophilic polymer, such as polyalkyleneimine can be water soluble, making them un-applicable as a water adsorbent.

Torii does not teach the newly added limitation claiming degree of hydrolysis in the range from 30 to 80 mol%.

Freedman teaches the degree of hydrolysis from 10 to 85%, preferably 50 % (see Column 2, line 15).

Degree of hydrolysis is directly connected to a number of cationic groups in a nitrogenous polymer. High degree of hydrolysis provides a polymer with high cationic density, whereas low degree of hydrolysis is favorable for processing of the polymer (highly charged macromlecules tends to interact with each other, leading to low solubility, problems with even crosslinking, etc.).

Applicant argues that Freedman discloses a structure, which is different from the claimed formula.

However, Examiner never stated that Freedman has a polymer structure, identical to one of the Application.

Torii, which is primary reference of the rejection, teaches structure, identical to one of the Application.

Applicant argues that Freedman teaches crosslinked polymer.

However, open language of claim 1 (“comprising”) allows a presence of crosslinking agent. In addition, claim 9 of the Application teaches cross-linked structure.

Applicant cites unexpected results, resulting in the combination of high molecular weight and moderate degree of hydrolysis. However, the results , which are preferably presented in Declaration under 37 CFR 1.132, must compare the claimed subject matter with the closest prior art to be effective to rebut a *prima facie* case of obviousness. *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). "A comparison of the *claimed* invention with the disclosure of each cited reference to determine the

number of claim limitations in common with each reference, bearing in mind the relative importance of particular limitations, will usually yield the closest single prior art reference." *In re Merchant*, 575 F.2d 865, 868, 197 USPQ 785, 787 (CCPA 1978) (emphasis in original) (see MPEP 716.02).

In this particular case only two point outside of claimed range are disclosed. The amount of data is not sufficient to conclude that combination of high molecular weight and moderate degree of hydrolysis leads to unexpected results.

Regarding CATIOFAST PR8106, which used both by Torii and Applicant (see discussion above), the above polymer has a hydrolysis degree of about 90%, but not 95%, as of Comparative Examples 1,6 and 7.

Applicant does not have any arguments regarding Nagasuna et al .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY LISTVOYB whose telephone number is (571)272-6105. The examiner can normally be reached on 10am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rabon Sergent/
Primary Examiner, Art Unit 1796

GL